

**METHOD AND APPARATUS FOR MODELING INJECTION OF A FLUID IN A
MOLD CAVITY**

Abstract

The invention relates to a method and apparatus for analyzing fluid flow while considering heat transfer effects and, in particular, a phase change from a molten state to a solid state. In particular, the method and apparatus may be applied to the analysis of an injection molding process for producing a molded polymer component from a thermoplastic or a thermosetting polymer. In one embodiment, the method may be used to determine pressure required to fill a mold cavity and pressure gradients introduced during filling and packing of the cavity of an injection mold. The results of these analyses may be used to determine the number and location of gates, to determine the best material for the component, and to optimize the process conditions used in the molding process.

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